



Energy Briefs

Helping You Live Energy Efficiently!

Airtight Drywall Approach

The Airtight Drywall Approach (ADA) is an air barrier system that connects the interior finish of drywall and other building materials together to form a continuous barrier. ADA has been used on hundreds of houses and has proven to be an effective technique for reducing infiltration as well as keeping moisture, dust, and insects from entering the home.

In a typical drywall installation, most of the seams are sealed by tape and joint compound. However, air can leak in or out of the home in the following locations:

- Between the edges of the drywall and the top and bottom plates of exterior walls
- From inside the attic down between the framing and drywall of partition walls
- Between the window and door frames and drywall
- Through openings in the drywall for utilities and other services.

ADA uses either caulk or gaskets to seal these areas and make the drywall a continuous air barrier system.

ADA Advantages

Effective: ADA has proven to be a reliable air barrier.

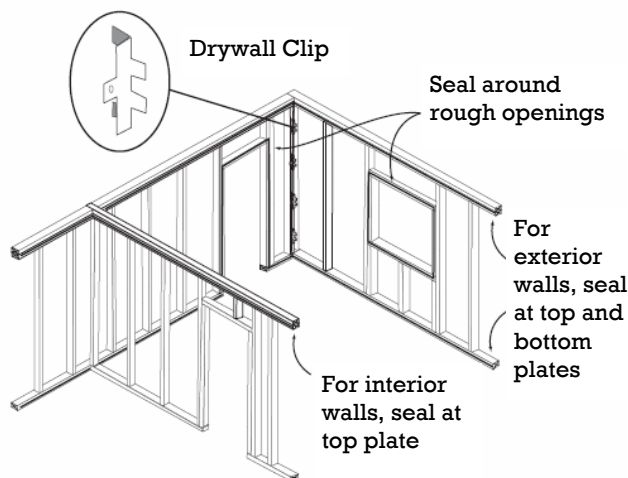
Simple: does not require specialized subcontractors or unusual construction techniques. If gasket materials are not available locally, they can be shipped easily.

Does not Cover Framing: the use of ADA does not prevent the drywall from being glued to the face of wall studs and ceiling joists.

Scheduling: gaskets can be installed anytime between when the house is 'dried-in' and the drywall is attached to framing. Some caulks remain pliable and can also be applied several days before the drywall is installed.

Adaptable: Builders can adapt ADA principles to suit any design and varying construction schedules.

Cost: materials and labor for standard designs should only cost a few hundred dollars. Gasket cost is 15-20¢/foot.



Airtight Drywall Approach seals the building envelope

ADA air barrier in wall/ceiling made continuous with gaskets or caulk

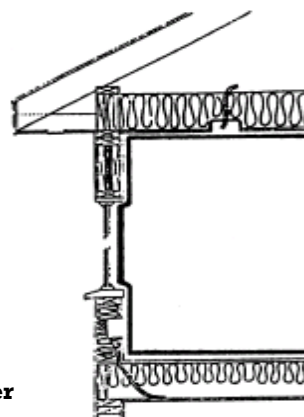
- Light fixture junction box caulked to ceiling
- Top of wall
- Header
- Window return
- Window rough opening
- Outlet box penetration
- Wiring caulked to box openings

Ceiling/wall vapor barrier

- Impermeable paint

Floor air barrier and vapor barrier

- Exterior plywood glued & sealed seams



South Carolina Energy Office * 1201 Main Street, Suite 430 * Columbia, SC 29201
(803) 737-8030 * 1-800-851-8899 * Fax (803) 737-9846 * www.energy.sc.gov

ADA Disadvantages

New: although ADA is a proven technique, many building professionals and code officials are not familiar with its use.

Not a vapor barrier: if required, a separate vapor barrier must be used with ADA. However, faced insulation batts, polyethylene plastic or vapor barrier paint work well.

Requires thought: while ADA is simple, unusual construction designs and techniques require careful planning to ensure that the air barrier remains continuous. However, ADA is often the most error-free and reliable air barrier for unique designs.

Requires care: gaskets and caulking can be damaged by subcontractors when installing the drywall or utilities.

ADA Techniques

Wood Framed Floors

- Seal the rim joist to minimize air currents around floor insulation. Also seal rim joists for multistory construction.
- For unvented crawlspaces or basements, seal beneath the sill plate.
- Seal the seams between pieces of subflooring with good quality adhesive.

Slab Floors

- Seal expansion joints and penetrations with a concrete sealant such as one-part urethane.

Exterior Walls

Install gaskets or caulk at the top and bottom plates of exterior walls so that when drywall is installed it compresses sealant to form an airtight seal against framing.

- Use drywall joint compound or caulk to seal the seam between drywall and electrical boxes. Install gaskets behind coverplates.
- Provide for vapor barrier by using faced insulation batts, polyethylene, foil-backed drywall or vapor barrier paint.

- Seal between the bottom plate and subflooring.
- Seal penetrations through the top and bottom plates for plumbing, wiring, and ducts.

Partition Walls

- Seal the drywall at either the top or bottom plate of partition walls.
- Seal the ductwork at the intersection of partition and exterior walls.
- Seal penetrations through the top and bottom plates for plumbing, wiring, and ducts.

Windows And Doors

- Seal drywall edges to either framing or jambs for windows and doors.
- Fill rough opening with foam backer rod and caulk (preferred) or low-expanding spray foam sealant.
- Caulk window and door trim to drywall with clear or paintable sealant.

Ceiling

- Follow standard finishing techniques to seal the junction between the ceiling and walls.
- Whenever possible, use continuous drywall sheets for the ceiling and walls in order to minimize joints that need to be sealed.
- Seal all penetrations in the ceiling for wiring, plumbing, ducts, attic access openings, and whole house fans.

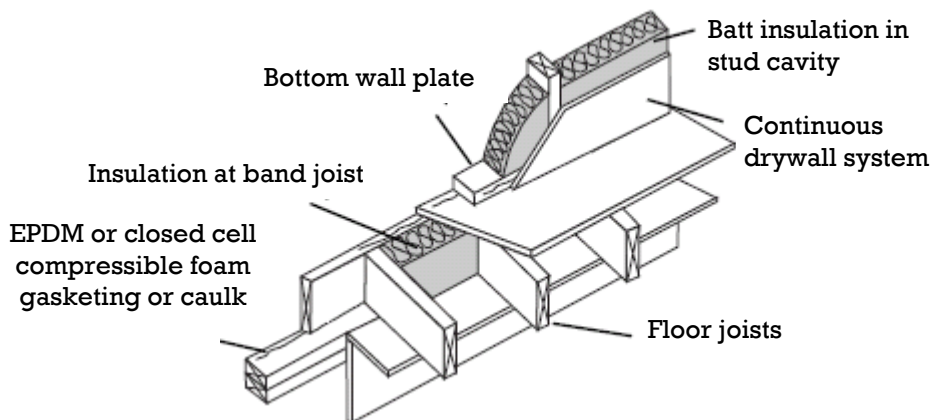
ADA Gasket Suppliers:

Resource Conservation Technology

2633 North Calvert Street
Baltimore, MD 21218
1-800-477-7724
www.conservationtechnology.com

Shelter Supply, Inc.

151 East Cliff Road, Suite 30
Burnsville, MN 55337
1-800-762-8399
www.sheltersupply.com



*Based on information provided by the South face Energy Institute.

*Updated 01-2008

